Louisiana species resulted from several causes, which unhappily still exist: a hostile prejudice against the man and his work; the rarity of copies of Robin's *Voyages* (no botanist to my knowledge went to the trouble of checking back to the original source; the lie that the descriptions were scrappy and inadequate has been monotonously repeated by persons who never saw Robin's 3-volume book); the paucity of collections and general lack of information (especially first-hand field acquaintance) about the Louisiana flora. On the basis of such limited studies as I have made so far, I am confident that most of the species of the *Florula Ludoviciana* can be satisfactorily identified. Since its early date (1817) gives it priority over most of the work of Elliott and all of that of Nuttall, Torrey, and Gray, there will undoubtedly be further name changes. Rafinesque himself did eventually see specimens from Louisiana, and was able to supply additional notes or confirmations for some of his *Florula Ludoviciana* species in the *New Flora of North America* and *Autikon Botanikon*. It is worth citing one extraordinary case in which Rafinesque was an excessive lumper. His *Oxalis sanguinolaria* (*Fl. Ludov.* 89) included what Robin had listed as two distinct species, not named. Rafinesque's abridged description makes it impossible to assign his name with precision. But Robin's ampler descriptions, for anyone who has seen the southeastern Louisiana spring flora, leaves not the slightest doubt that he was describing the very distinct *O. recurva* Ell. and *O. Dillenii* Jacq. var. *radicans* Shinners (for a key to these, see Field & Lab. **24:** 39–40, 1956). Rafinesque had been too conservative, and *Oxalis sanguinolaria* must be rejected as based on an inextricable mixture.—Lloyd H. Shinners, southern methodist university, dallas 5, texas.

Dentaria laciniata from Seed.—In a paper on the genus *Dentaria* in eastern North America, Montgomery* ascribes sterility to certain species, among these *D. laciniata*. He states that "pods may develop to a good size, but when the contents are examined, they will most frequently be found to contain aborted ovules," and that apparently mature seeds of *D. laciniata*

* Montgomery, F. H. 1955. Preliminary studies in the genus *Dentaria* in eastern North America. Rhodora **57:** 161–173.

from Ontario failed to germinate. Examination of pollen showed that "good pollen was the rule," but hand-pollination (both self-pollination and cross-pollination) was unsuccessful. It was found that disintegration of the cells of the embryo sac took place after reaching the 8-celled stage, resulting in abortion of ovules. The conclusion was reached that "the eastern North American species of *Dentaria* proved to be another example of a polyploid series [*D. laciniata* from Guelph, Ont., had 240 chromosomes] being sexually sterile" and that "undoubtedly they reproduce mostly, if not entirely, apomictically by vegetative reproduction, for which the nature of the rhizome seems admirably suited."

The question at once came to mind—if *D. laciniata* reproduces only vegetatively, how has it succeeded in migrating so far in post-Wisconsin time, and how can it be such a rapid and aggressive invader of disturbed woodlands?

Although *D. laciniata* may be sexually sterile in Ontario, it is not so in southern Ohio. In the spring of 1956, with the above question in mind, patches of flowering plants were examined and, in each case, some small plants with entire elliptic leaves were found. Below ground, these were connected with the germinated seed, the seed-coat, though torn, still recognizable. As a further check, seeds were collected later as they matured. Seeds are produced abundantly, and forcibly thrown to a distance of several feet by the sudden splitting and curling of the halves of the silique. Collection of several hundred seeds was easily accomplished by placing almost ripe inflorescences under a bell-jar to prevent escape of seeds.

Attempts to germinate the fresh seed in moist chambers were unsuccessful; refrigeration did not help. In consequence, seeds were planted in the open under natural conditions, one lot on May 30, another (of refrigerated seed) on July 14. In the fall, some of the seeds were dug up, but germination had not taken place. Early in March, 1957, leaves began to appear above ground in both plots. Viability was high, at least 80 per cent.

The seedling *D. laciniata* has unlike cotyledons; one is fleshy and remains in the seed-coat, the other grows a long slender petiole (length dependent on depth of humus or leaf-litter overlying seed bed) which pushes above ground as a narrow arch,

the young leafblade bent back parallel to the petiole, and hence is pulled out of the ground, after which it assumes an upright position. This single emergent cotyledon has an entire elliptic blade 3–10 mm. long. The plumule, at first inconspicuous, soon begins to develop into a rhizome which by mid-April may be several mm. in length. At this time, the subterranean cotyledon in the torn seed-coat is still present. Occasionally a leaf with entire or lobed blade arises from the young rhizome. More often, the green plant the first year has only the one emergent cotyledon. By late May, the seedlings die down; at this time the young rhizomes are about 5 mm. long.

The number of chromosomes of the sexually fertile southern Ohio plants has not been determined. It is entirely possible that they do not display as high polyploidy as do the more northern plants. *D. multifida* was shown to have different numbers in different specimens ($2n = 64$ and $\pm$ 112). Sexual fertility of *D. laciniata* (and perhaps of other species southward) necessitates a reconsideration of the question of hybrid origin of certain forms. It explains the rapid migration of the species.—E. Lucy Braun, cincinnati, ohio.

A New Botanical Masterpiece from Denmark.[1]—Although on this side of the Atlantic we are not accustomed to seeing first-class illustrated floras or pictorials of plants, the European countries have long been known for their superbly illustrated floras. Perhaps this is a part of the secret affecting the considerably more widespread interest in botany on the eastern side of the ocean. Descriptions in words never can be made so explicit, even by a skilled taxonomist, that others, especially amateurs, do not have greater difficulties in identifying the plant than if pictures are included. Even a relatively inexact drawing is more desirable than are the most exact of terms, not only for the layman interested in naming the plants he finds but also for the specialist. This principle was understood by the first botanists, although most of their illustrations are not always impressive to their more sophisticated colleagues of to-day. Too many authors of floras in modern times seem to prefer many words instead of a simple picture.

The first printed herbals of the 16th century are often at the same time collections of artistic drawings, some of which were made by the greatest artists of the Netherlands. Some of these flower pictures by renaissance

[1] Botanisk Atlas. Danmarks daekfröede planter tegnede af Olaf Hagerup og Vagn Peterson.—Ejnar Munksgaard, Köbenhavn, 1956. 550 pp.